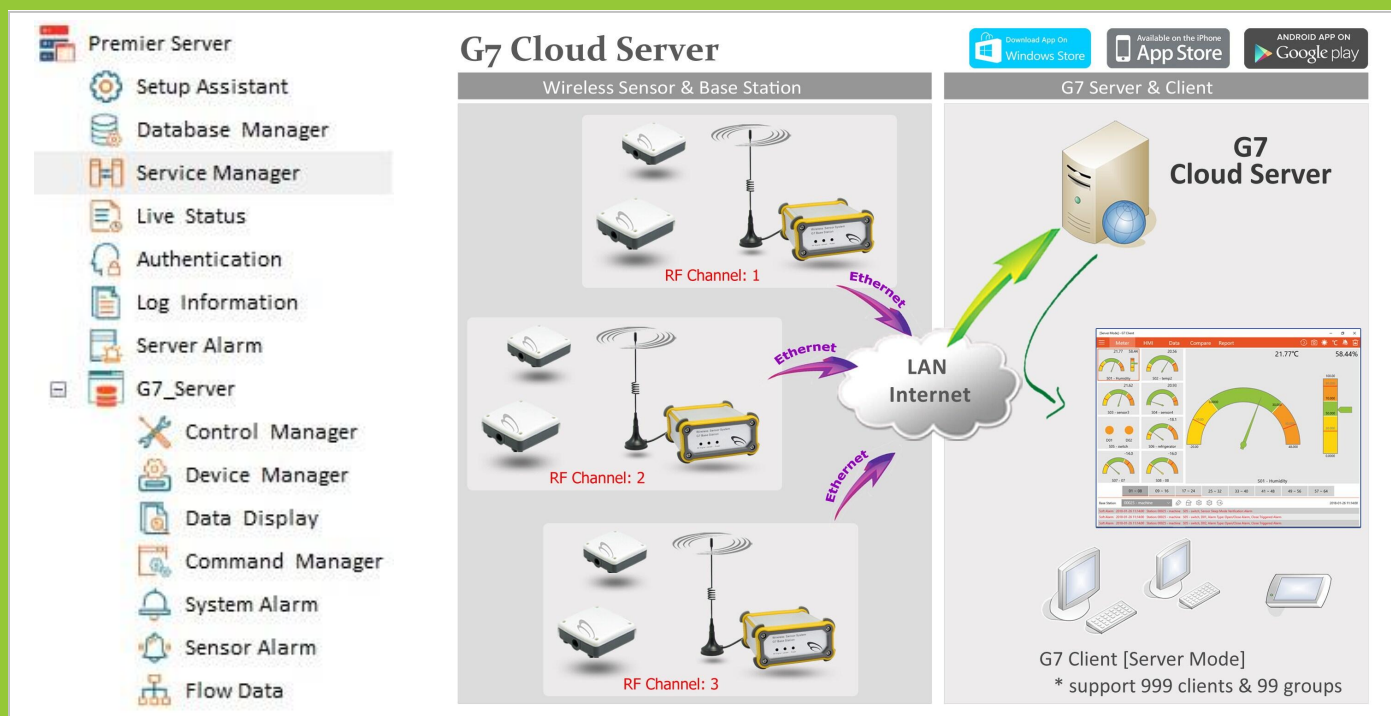


G7 Cloud Server

G7 Client for Windows, iPad, iPhone & Android Phone



G7 Server is dedicatedly developed for high volume data application from G7-BS base stations.

- Receive data from base station via LAN or Internet
- Management of database
- Management of base stations, emails and clients
- Management of data and alarm, and statistic data
- Alarm Email & SMS Management
- UTC Management for different time zones
- Support MySQL database and redundant databases
- Handling thousands threads of incoming data simultaneously [patented]
- Support max. 99999 base stations
- Support max. 999 client users
- Support max. 99 groups in one single hosting
- Administrator and Normal User Levels
- Remote Server Configuration
- Supports Wireless Sensors:
Temperature & Humidity, Analog Sensor, Digital Sensor, RS485 Modbus, Temperature Pressure
- Individual Grouping of user, station, alarm
- Automatic Stations Clock Synchronization

G7 Client displays both live, historical data and analytical report in graphics mode.

1. Receive data from Server Database [server mode]
2. Receive data from base stations [direct mode]
3. Alarm on high/low reading or low battery level
4. Alert user via on screen display and alarm email
5. Instant alert on digital alarm
6. Remote configuration Server Setting e.g. alarm level, alarm email address, alarm phone
7. Support Administrator/User access privilege
8. Data Export as SQLite, mdb or cvs format
9. Display modes:
 - Meter Screen
 - HMI (Human Interface Machine)
 - Line Chart (comparison of sensors)
 - Dashboard for 64 sensors on single screen
 - Statistic & Tracking Report

Platforms

Windows 11, iPad, iPhone & Android Phone

Desktop & Touchscreen Mode

Windows Service

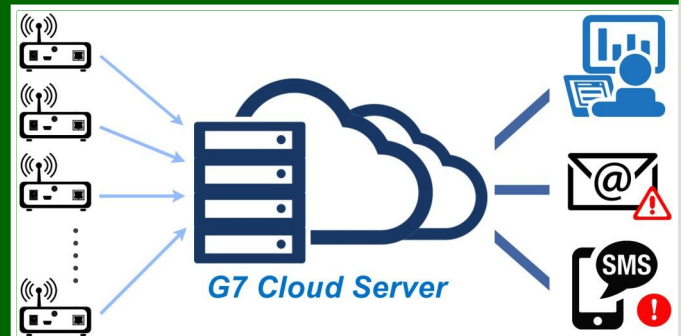
Data Receiving Modules are developed as Windows Service Components for Windows 11 & 2022 Server OS.

Services are independent, reliable and stable in server grade application.

1. TCP service - manages the incoming data and outgoing command via TCP protocol
2. CLT service - manages the data and command with Client Software
- real time statistic data reporting

By virtue of multi-threading technology, each service is capable of handling thousands of incoming data per second simultaneously.

This design is dedicated for Windows Server platform application.



Station ID	Station Name	Enable Display Alert	Enable Email Alert	Enable Phone Alert
00005	00005	☐	☐	☐
00010	datacentre	☐	☐	☐
00022	machinerom	☐	☐	☐
00025	machine	☐	☐	☐
00040	tempmonitor	☐	☐	☐
00100	00100	☐	☐	☐
00101	00101	☐	☐	☐
00102	00102	☐	☐	☐
00103	00103	☐	☐	☐
00104	00104	☐	☐	☐
00105	00105	☐	☐	☐
00106	00106	☐	☐	☐
00107	00107	☐	☐	☐
00108	00108	☐	☐	☐
00109	00109	☐	☐	☐
00110	00110	☐	☐	☐
00111	00111	☐	☐	☐
00112	00112	☐	☐	☐
00113	00113	☐	☐	☐
00114	00114	☐	☐	☐

Management of Base Stations

Central management of base stations:

- Station ID & Name, Remote Client User Login
- Data of Sensor Reading and Battery Voltage Level
- Display, Email & SMS Alarm Management
- Central control of each station's UTC time zone
- Real Time Monitoring of Base Station Health Status

Management of Alarms

Central management of alarms:

- Each wireless sensor has individual and independent alarm in 2 levels
- Independent control of temperature, humidity, analog and digital alarm
- Alarm Time Delay & Alert Interval are independent in each sensor
- Alarm email message is user programmable
- Wireless Sensor Defect and Communication Loss alarm

Each Sensor is associated with:

- * Higher/High/Low/Lower Alarm Levels
- * Time Delay, Display/Email/SMS Alarm Interval

Each Base Station is associated with:

- * administrator and user password
- * 3 alarm email address, 3 SMS phone number and 2 time zones

Device Setup

Station ID:

11111

Station Name:

DataCentre

Sensor ID:

S01

Wireless Sensor Analog Channel Alarm

Sensor Type:

☒ A01
 ☐ H01

Level_Max Value :

125

Level_2_Higher Alert :

80

Level_1_High Alert :

60

Level_1_Low Alert :

-15

Level_2_Lower Alert :

-20

Level_Min Value :

-55

Wireless Sensor Digital Channel Alarm

Sensor Type:

☒ D01
 ☒ D02

System Alarm is assigned as problem in database, service, base station data loss and corrupted data with its own alarm email and SMS.

Management of Client Users

G7 Server is designed for hosting a number of user groups in one single server:

- Each client can be assigned as administrator or normal users to access each base station
- Each group of base stations can be assigned for one corporate customer, which can appoint its own administrators or users
- Enterprise can manage different plants, factories or stores using one server license
- Hosting company can manage different groups of data for a number of its customers independently and individually
- Management of UTC time zone for each device and client user worldwide

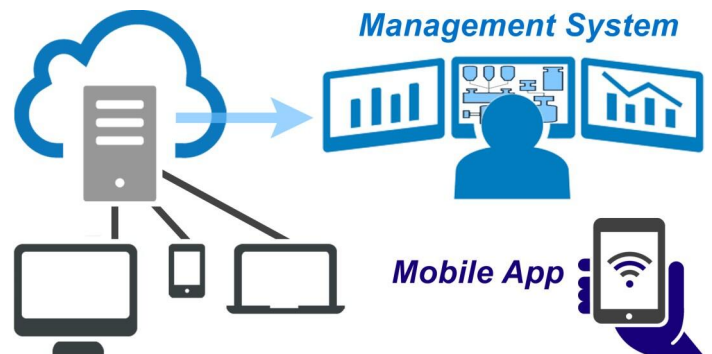
Free G7 Client software allows users:

- Access data from Server Database
- Graphics Display of live data, historical data and statistic data
- HMI, Meter, Line Charts, Dashboard, Report
- Remote configuration of alarm in administrator mode

Data Display in G7 Server

Live Data:

- * Auto Search and Filter in Station Name or ID
- * Selection of Normal Data and Alarm Data
- * Data Export as mdb for external report or analysis



Live Data

History Data

Statistical Data

Query Setting

Query Station ID

Filter:

ALL

Display Selection

☒ Normal Data

☐ Alarm Data

Automatic Refresh Interval

NO.	Client Code	Header	Station ID	Station Name	Record_Time
1	ZZZ-WZJ-ZIZ-AZY	STA	11111	DataCentre	2018-02-01 23:36:00
2	ZZZ-WZJ-ZIZ-AZY	STA	22222	22222	2018-02-01 23:34:00
3	ZZZ-WZJ-ZIZ-AZY	STA	11111	DataCentre	2018-02-01 23:34:00
4	ZZZ-WZJ-ZIZ-AZY	STA	00119	00119	2018-02-01 23:33:20
5	ZZZ-WZJ-ZIZ-AZY	STA	00118	00118	2018-02-01 23:33:20
6	ZZZ-WZJ-ZIZ-AZY	STA	00117	00117	2018-02-01 23:33:20
7	ZZZ-WZJ-ZIZ-AZY	STA	00116	00116	2018-02-01 23:33:20
8	ZZZ-WZJ-ZIZ-AZY	STA	00115	00115	2018-02-01 23:33:20
9	ZZZ-WZJ-ZIZ-AZY	STA	00114	00114	2018-02-01 23:33:20
10	ZZZ-WZJ-ZIZ-AZY	STA	00113	00113	2018-02-01 23:33:20

History Data:

- * Keep track of data record in daily/weekly/monthly/annual
- * Auto Search Station Name or ID
- * Selection of Normal Data and Alarm Data
- * Selection of historical data period
- * Data Export as mdb for future data analysis or backup
- * Background Data Export optimizes the server performance

Statistical Data:

- * Real time calculation of statistic data based on live data
- * Auto Search Station Name or ID
- * Selection of Statistical Period
- * Statistical Data Export as mdb for data tracking and analysis
- * Server performs data statistic calculation in background
- * Report generation for Client app

Monitor Server Loading

G7 Server keeps track of status, loading and performance of its data receiving service and database.

- Real time tracking of data incoming, buffering and saving
- Data buffering is an indication of system loading and data bandwidth usage
- Historical tracking of system performance for contingency plan
- Performance and Health Status tracking of individual base station or groups of base stations
- Management of network bandwidth consumption

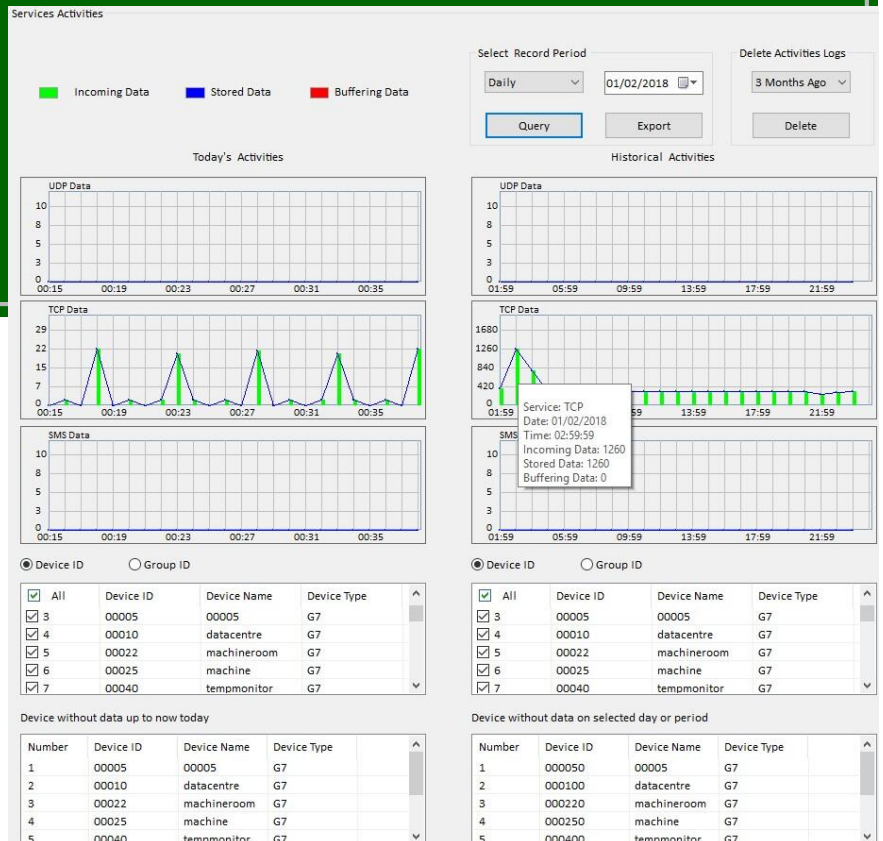
G7 Server supports simultaneous port connection to a number of base stations.

Our State of the Art Technology is capable of handling thousands of incoming data in a second.

Server Logs

G7 Server monitors its own health status by keeping track of its own activities.

- Each server operation is stamped with date time, and logged
- Powerful tool for system analysis and error handling
- Send alarm when no data is uploaded from any base station or group of devices



Management of Base Stations

Live Status Display of Server, Device, Client, Data & Alarm:

- Real time display of service and operation
- Communication status among server, device, client user and alarm
- Database connection status

Live Status Display Premier Server Status Alarm Display Data < Device Command > Device Command < Client Acknowledge

Premier Server Status

[02-02-2018 00:48:46] -> Soft Alarm, ID: 11111 SMS Delivery Completed.
 [02-02-2018 00:48:44] -> Soft Alarm, ID: 11111 Email Delivery Completed.
 [02-02-2018 00:48:44] -> Soft Alarm, ID: 11111 SMS Delivery Completed.
 [02-02-2018 00:44:41] -> Soft Alarm, ID: 11111 Email Delivery Completed.
 [02-02-2018 00:43:45] -> CLT_Service is Started.
 [02-02-2018 00:43:44] -> CLT_Service is stop.
 [02-02-2018 00:43:42] -> TCP >> DB 1 connect

Alarm Display

[02-02-2018 00:48:40] -> G7 Soft Alarm Data, Station ID: 11111, Channel: S13, sensor probe defect
 [02-02-2018 00:48:40] -> G7 Soft Alarm Data, Station ID: 11111, Channel: S07, A07, High/Low Level Alarm, Low Level 1 Alarm: -9.12 lower than 0.00
 [02-02-2018 00:45:09] -> G7 Soft Alarm Data, Station ID: 22222, Channel: S10, A10, High/Low Level Alarm, Low Level 1 Alarm: 18.50 lower than 20.00

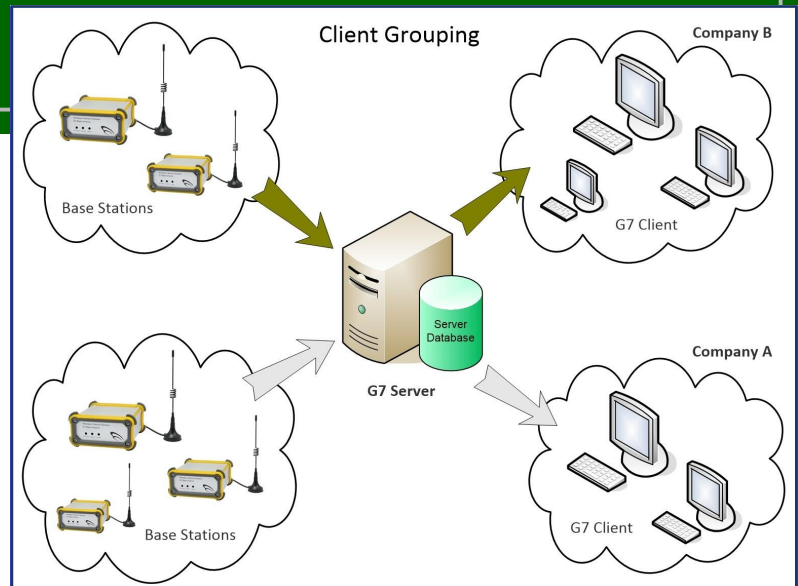
Database Manager

G7 Server supports MySQL database commonly available in the market:

- Database Connection Engines is integrated in Server Software
- Easy creation and connection of new database with few steps
- Database test tool integrated
- Database Connection List for clear installation
- Select different database connection at any time

Designed for
Hosting Companies

G7 Server allows stations assigned to groups of clients with their own alarm emails and sms phone number.

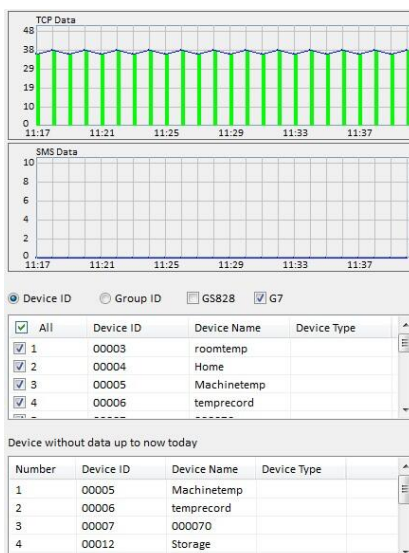


Database Redundancy

Data security is the key issue in telemetry industry. G7 Server provides fault tolerant architecture to protect data:

- Simultaneous data saving into two independent databases
- Automatic switching to health database when one of two databases is corrupted
- Server and Database IP addresses are independent

Database Information				
Database Type	mysql	UDP	TCP	SMS
Primary Database : DB 1	gs_database#root@localhost			
Secondary Database : DB 2	gs_database#root@192.168.0.50			



Stress Test - G7 Performance

G7 Server Software undergoes stress testing on critical condition.

- It is capable of receiving data from >20000 base stations per second simultaneously by creating a number of connections.
- Our patented "threading & multi-ports technology" handles thousands of incoming data records in seconds.
- Establishment of TCP multi-connections with thousands base stations simultaneously.
- Synchronized data saving into two databases over network.
- Real Time Status of incoming data, buffering and saving is displayed in graphics

Alarm Levels Remote Setup

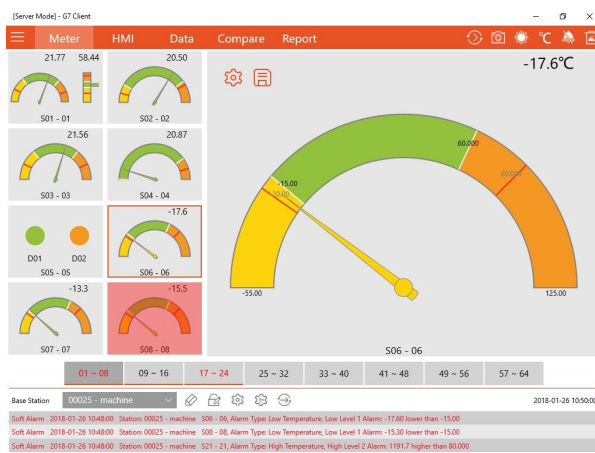
Following setup parameters are synchronized between G7 Server and G7 Client.

- Alarm High/Low Level
- Alarm Email Address, Alarm SMS Phone Number
- Alarm Delay Time, Alarm Interval
- Admin & User Passwords

G7 Server and G7 Client are synchronized in configuration setting

G7 Client [Administrator] is able to configure the alarm setting in Server.

G7 Client [User] displays data from server in graphics, and is alerted when alarm is triggered.



Alarm Email & SMS Phone Number Remote Setup



Server Configuration Import/Export

It allows backup of configuration for maintenance or upgrade.

- All system parameters including remote users, station, sensors information
- All alarm setting for each sensor, alert email and sms phone number

Tank Volume Calculation

Automatic Tank Volume Calculation

It provides tank volume calculation based on the level measurement of wireless level sensor.

- Wireless Level Sensor provides the tank level only
- Different volume results in different shapes of tank and measurement unit e.g. litre, gallon
- G7 Server is integrated with 10 formulas for various shapes of tank, supporting both pressure type and ultrasonic level sensors
- G7 Server calculates and saves the volume instantly upon receipt of level measurement

G7 Client will display the real time tank volume instead of tank level.

- Vertical Rectangular / Vertical Cylindrical Tanks, Horizontal Rectangular / Horizontal Cylindrical Tanks
- Measurement unit in cm or inch result in litre, gallon or cm^3
- Support 2 levels of tank volume high/low alarm

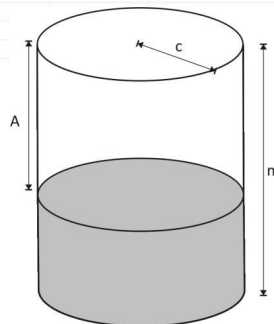
Channel ID	Formula	m	c	d
A01	1	400.0	0.000	0.000
A02	1	125.0	2.000	0.000
A03	2	400.0	20.00	0.000
A04	2	125.0	25.00	0.000
A05	3	400.0	0.000	0.000
A06	3	125.0	2.000	0.000
A07	4	400.0	20.00	0.000
A08	4	125.0	25.00	0.000
A09	5	400.0	0.000	0.000
A10	5	125.0	2.000	0.000
A11	6	400.0	0.000	50.00
A12	6	125.0	2.000	20.00
A13	7	400.0	20.00	40.00
A14	7	125.0	25.00	50.00
A15	8	400.0	0.000	50.00
A16	8	125.0	2.000	20.00
A17	9	400.0	20.00	40.00
A18	9	125.0	25.00	50.00
A19	10	400.0	0.000	50.00
A20	10	125.0	2.000	20.00

Station ID	Station Name	A01	A02
00300	00300	m = 400.0 c = 0.000 d = 0.000	m = 125.0 c = 2.000 d = 0.000

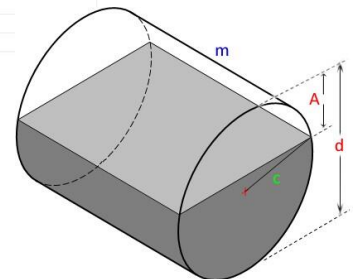
Wireless Level Sensor



Vertical Cylindrical Tank



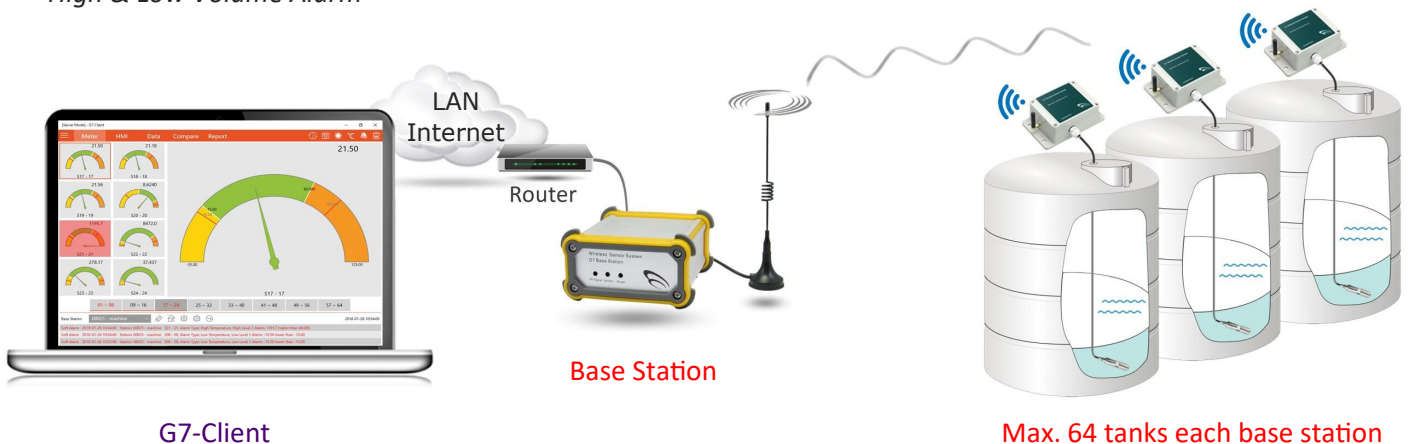
Horizontal Cylindrical Tank



Wireless Oil Tank Volume Tracking

Real Time Tank Volume Tracking
High & Low Volume Alarm

G7-AD Wireless Analog Transmitter
& Level Sensor



Automatic Flow Rate & Volume Calculation

Flow Rate (flow volume per interval) calculated based on total volume flow from G7-MB wireless Modbus sensor:

- Calculate the total volume flow based on volume per pulse
- Total Flow hourly, daily, weekly, monthly stored in database
- Allow users to display and export the history data of total flow per interval
- G7 Client displays the flow rate and alarm
- Support different types of flowmeter or rain gauge with Modbus protocol via RS485

Pulse Rate

Flow Rate

Flow Alarm

Query Setting

Query Device ID

Filter:

00005 - flowmeter

Total Flow

☒ Periodic

☐ Daily

☐ Weekly

☐ Monthly

Query Time

☐ Today

☒ Last 7 days

☐ Last 4 weeks

☐ Last 3 months

☐ Manual Select

NO.	Station ID	Station Name	UTC	Start Time	Flowmeter P01
1	00005	flowmeter	UTC+08:00	2022-02-14 09:00:00	1250.00000
2	00005	flowmeter	UTC+08:00	2022-02-14 08:00:00	725.000000
3	00005	flowmeter	UTC+08:00	2022-02-14 07:00:00	1550.00000
4	00005	flowmeter	UTC+08:00	2022-02-14 06:00:00	830.000000
5	00005	flowmeter	UTC+08:00	2022-02-14 05:00:00	845.000000
6	00005	flowmeter	UTC+08:00	2022-02-14 04:00:00	875.000000
7	00005	flowmeter	UTC+08:00	2022-02-14 03:00:00	235.000000
8	00005	flowmeter	UTC+08:00	2022-02-14 02:00:00	200.000000
9	00005	flowmeter	UTC+08:00	2022-02-14 01:00:00	170.000000
10	00005	flowmeter	UTC+08:00	2022-02-14 00:00:00	150.000000
11	00005	flowmeter	UTC+08:00	2022-02-13 23:00:00	130.000000
12	00005	flowmeter	UTC+08:00	2022-02-13 22:00:00	90.0000000
13	00005	flowmeter	UTC+08:00	2022-02-13 21:00:00	510.000000
14	00005	flowmeter	UTC+08:00	2022-02-13 20:00:00	95.0000000
15	00005	flowmeter	UTC+08:00	2022-02-13 19:00:00	21.0000000
16	00005	flowmeter	UTC+08:00	2022-02-13 18:00:00	16.0000000
17	00005	flowmeter	UTC+08:00	2022-02-13 17:00:00	23.0000000

Application

- Rain Gauge: Calculate the rain fall per hour, day, week, month
- Flow Meter: Calculate the total volume flow per hour, day, week, month

Flow Rate (flow volume per interval) calculated based on Modbus reading:

- Calculate the total volume flow based on volume
- Total Flow hourly, daily, weekly, monthly stored in database
- Allow users to display and export the history data of total flow per interval
- Database saves the flow rate and Server will send alarm
- Support max. 4 types of flowmeter/rain gauge

Flow Volume Alarm

Flow Alarm based on pulse counter reading from G7-MB wireless Modbus sensor:

- Support 2 levels of high/low flow volume
- Alarm on Total Flow hourly, daily, weekly, monthly
- Deliver both alarm email and SMS to users

Pulse Rate	Flow Rate	Flow Alarm
Device Setup		
Station ID :		
00005		
Station Name :		
flowmeter		
Flowmeter Channel Soft Alarm		
Flowmeter Channel :		
P05		
Total Flow		
☒ Periodic ☐ Daily		
☐ Weekly ☐ Monthly		
Level_Max Value :		
500		
Level_2_Higher Alert :		
400		
Level_1_High Alert :		
300		
Level_1_Low Alert :		
100		
Level_2_Lower Alert :		
20		
Level_Min Value :		
0		

Data Tracking

Support Windows 11
Desktop & Touchscreen Mode

G7 Client allows user to track data from Server Database:

- Live, Historical and Statistical Data Tracking in graphics mode
- Each client will be alerted when sensor reading is beyond the preset
- Client can be alerted by on screen display, audio buzzer, email and SMS
- Each client is assigned to groups of base stations
- Real time monitor up to 64 sensors on one screen, and max. 640 sensors in background

Key points:

- Max. 99999 base stations supported in each client user
- Max. 64 wireless sensors data simultaneous real time display on single screen [DATA mode]
- Live alarm update, data monitoring and saving on background
- Simultaneous monitor of temperature, humidity, analog sensor and digital alarm
- Independent soft alarm levels of individual sensor [independent of Server and Base Station Alarm]

Meter Display

- Supports 8 sensors meter view each page
- Total 8 pages provide 64 sensors meter display for each base station
- Higher/High/Low/Lower Temperature, Humidity, Analog & Digital Alarm
- Low Battery Alarm
- Real Time Alarm Alert on screen and buzzer
- Temperature Unit Selection: C° & F°
- Background Alarm Listing



[Server Mode] - G7 Client

Meter	HMI	Data	Compare	Report
21.77 57.46	51.43	21.75	21.12	-18.8
S01 - Humidity	S02 - temp2	S03 - sensor3	S04 - sensor4	S05 - switch
22.32 57.88	21.50	21.81	8.7240	1213.1
S09 - 09	S10 - 10	S11 - Door	S12 - Level	S13 - 13
21.81	21.50	21.81	8.7240	1213.1
S17 - 17	S18 - 18	S19 - 19	S20 - 20	S21 - WATER
S25 - 25	S26 - 26	S27 - 27	S28 - 28	S29 - 29
S33 - 33	S34 - 34	S35 - 35	S36 - 36	S37 - 37
S41 - 41	S42 - 42	S43 - 43	S44 - 44	S45 - 45
S49 - 49	S50 - 50	S51 - 51	S52 - 52	S53 - 53
S57 - 57	S58 - 58	S59 - 59	S60 - 60	S61 - 61
S62 - 62	S63 - 63	S64 - 64		

Base Station: 00025 - machine

2018-01-26 11:38:00

Soft Alarm: 2018-01-26 11:38:00 Stations: 00025 - machine S02 - temp2, Alarm Type: High Temperature, High Level 2 Alarm: 51.430 higher than 30.000

Soft Alarm: 2018-01-26 11:38:00 Stations: 00025 - machine S08 - 08, Alarm Type: Low Temperature, Low Level 1 Alarm: -16.80 lower than -15.00

Soft Alarm: 2018-01-26 11:38:00 Stations: 00025 - machine S12 - Level Control, D02, Alarm Type: Open/Close Alarm, Close Triggered Alarm

Dashboard

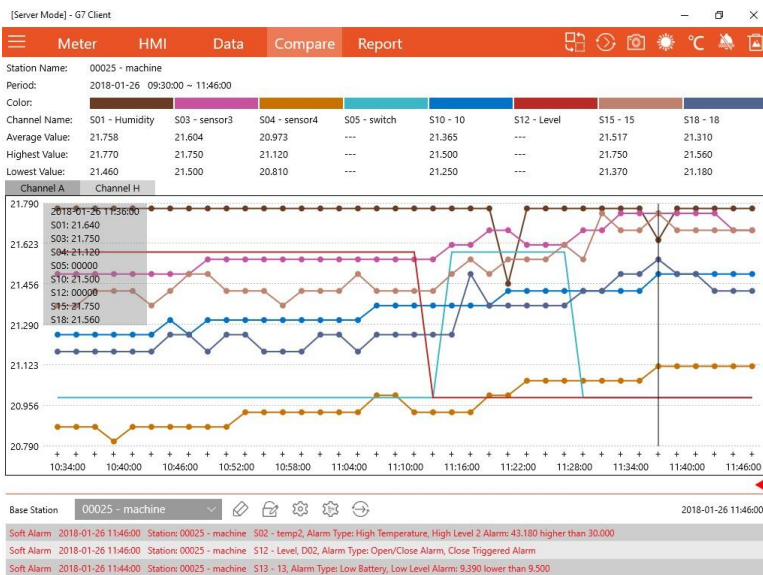
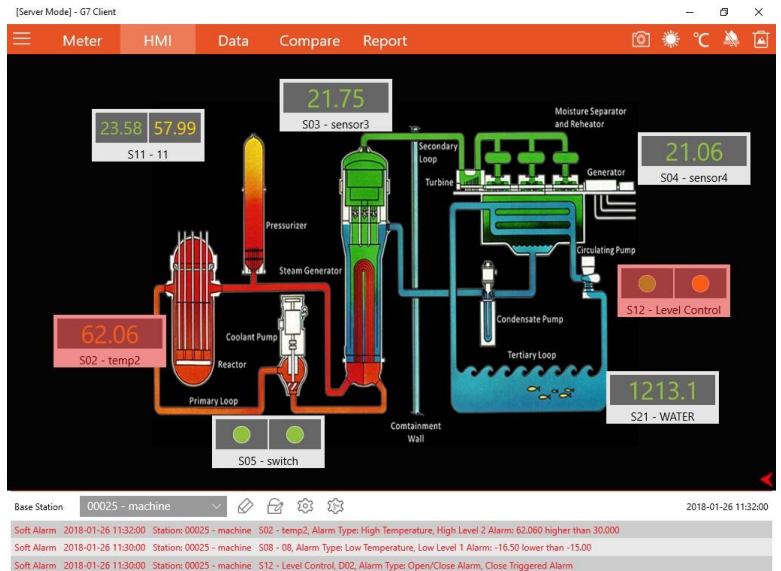
- Max. 64 sensors on one single screen
- Selection of sensor and battery reading display
- Higher/High/Low/Lower Level Alarm for Temperature, Humidity, Analog Sensors
- Digital Alarm
- Real Time Alarm Alert on screen and buzzer
- Temperature Unit Selection: C° & F°
- Background Alarm Listing

G7 Client for Windows 11 & iPad

Desktop PC & Tablet

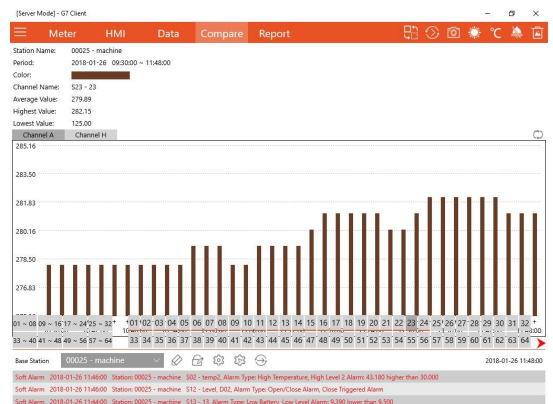
HMI Display

- Max. 64 sensors in each HMI picture
- High/Low Temperature Humidity Alarm
- Low Battery Alarm
- Both Live & Historical Data are supported
- Real Time Alarm Listing
- User selectable import of jpg picture



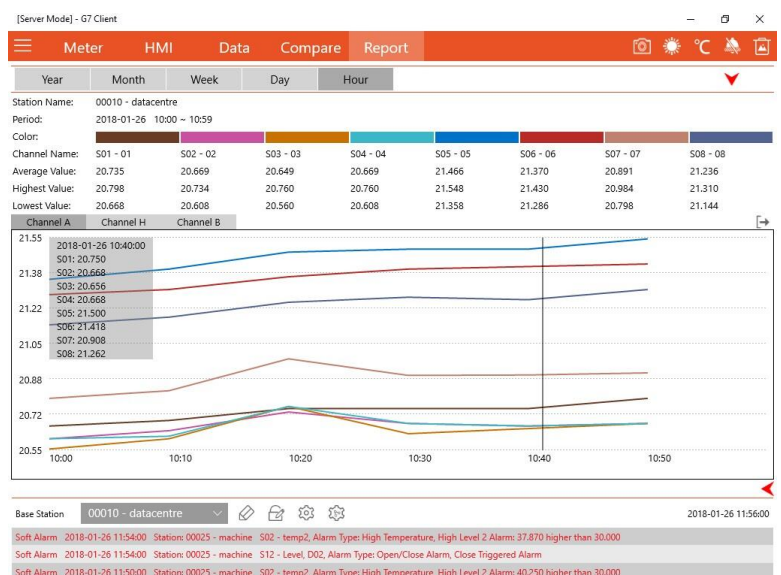
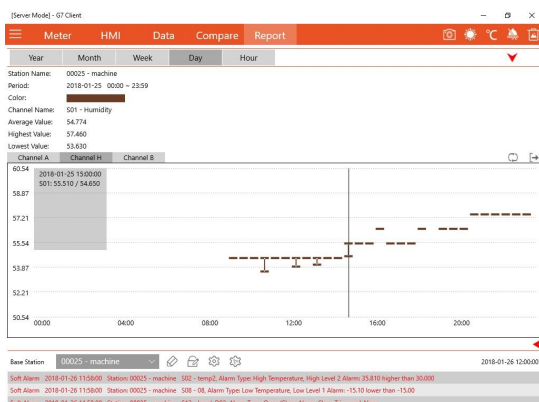
Line Chart Comparison

- Max. 8 sensors in single chart
- Total 8 groups comparison for 64 sensors
- Live & Instant Historical Data comparison
- Line or Column Chart style user selectable
- Time Line automatic scale



Statistic Report

- Max. 8 sensors in single chart report
- Total 8 groups comparison for 64 sensors
- Statistical Data comparison
- Line or Column Chart style user selectable
- Time Line Scale selectable (day, week, month, year)
- User selectable historical period



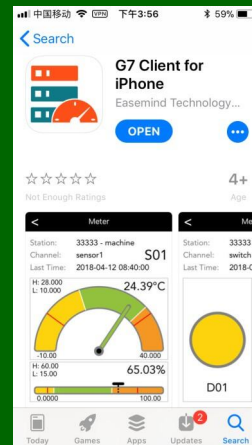
Simple & User-Friendly Graphics

G7 Client [Server Mode] for iPhone & Android Phone:

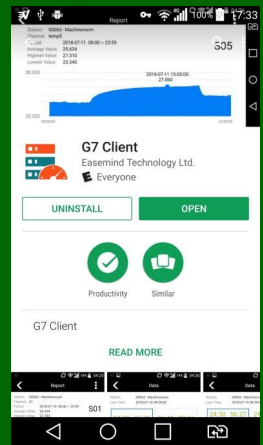
- User friendly operation on touch screen, Fast response and crystal clear display
- Instant live and historical data display, alarm alert
- Support Server Mode only

Features:

- * Meter View
- * Dashboard
- * Alarm List
- * Line Chart
- * Statistic Report

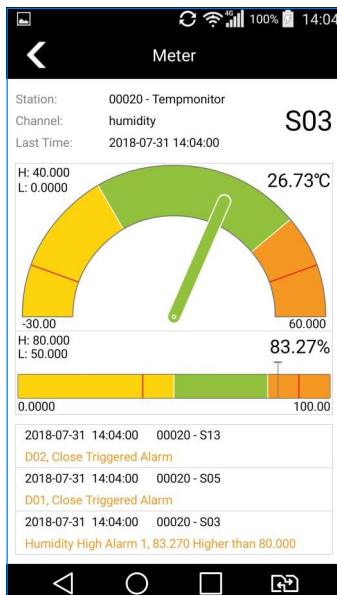


iPhone

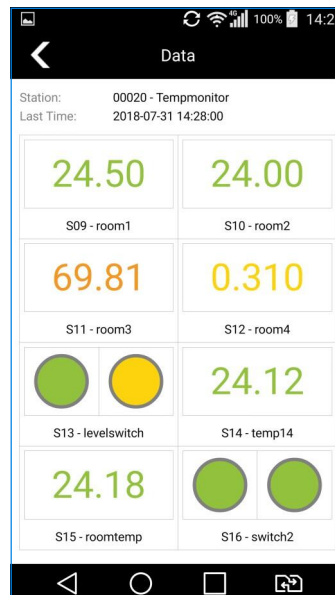


Android Phone

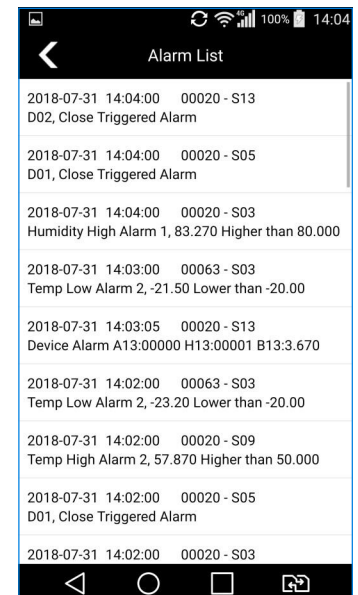
Meter View



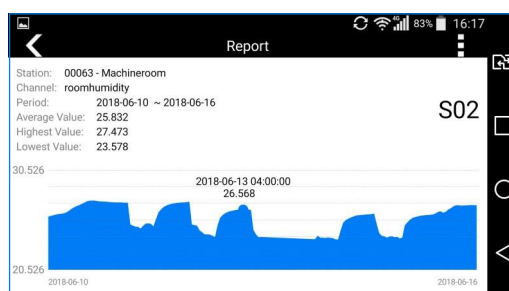
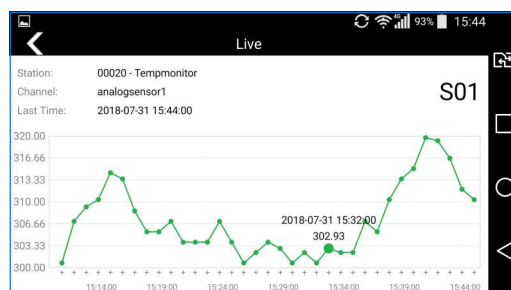
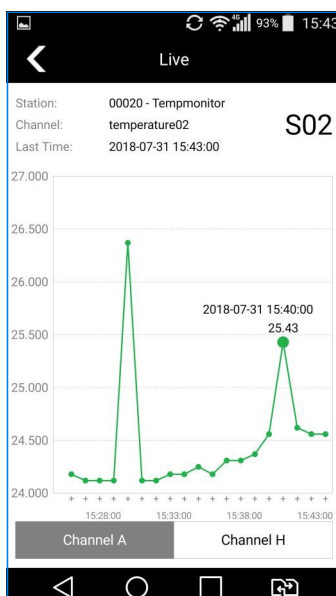
Dashboard



Alarm List



Line Chart



Report Display



G7 Server & G7 Client

Edition	G7 Centre	G7 Server
[A] Software		
G7 wireless sensors	Yes	Yes
Receive Data & Alarm from base station	Yes	Yes
Live, Historical & Statistical Data Display	—	Yes
Database	txt	MySQL
Data Export to mdb or SQLite	—	Yes
Server & Base Station Clock Auto-Synchronization	—	Yes
Analog, Digital, Temperature & Humidity Alert	—	Yes
Send Alarm Alert via TCP network, email, SMS	—	Yes
Alarm Email & SMS Phone Grouping & Management	—	Yes
Base Stations & Clients Grouping & Management	—	Yes
G7 Client Software support	—	Yes
Max. number of base stations simultaneous support	10	99999
Redundant Database Management	—	Yes
Setting Synchronization between client and server	—	Yes
Login User & Administrator Authentication & Management	—	Yes
Data Direct Access for user development	—	Yes
Server Loading & Performance Status Monitoring	—	Yes
Tank Volume Formula built-in	—	Yes
[B] G7 Client Software for Win11	N.A.	Bundled
Direct & Server Mode	—	Yes
Number of client users simultaneous connection	—	999
Live, Historical & Alarm Data Display	—	Yes
AD Level, Temperature & Humidity - 2 levels of Hi/Low Alert	—	Yes
Graphics Display of Temperature, Humidity & AD	—	Yes
No. of Sensors on single screen (Data Listing)	—	64
Charts & Lines (Listing, Meter, Line Chart...)	—	12
Remote Setup	—	Yes
[C] G7 Client for iPad, iPhone & Android Phone	—	Yes
[D] 4G Modem for sending SMS alarm	—	Optional
	G7 Client Lite	G7 Client
Windows 11, iPad, iPhone, Android Phone	Direct Mode	Server Mode
[1] Server Mode	Free bundled	Free bundled with Server Software
Alarm Alert on screen and email	—	Yes
Data Export to mdb or csv	—	Yes
Schedule Live & History Data Export	—	Yes
Temperature & Humidity, Analog Sensor Software Alarm		Yes
Max. Channels	—	unlimited
[2] Direct Mode		
Receive Data & Alarm via Ethernet	Yes	—
Max. Data Loggers accessed simultaneously	2	—
AD Level, Temperature & Humidity Hi/Low Alert	Yes	—